Hospital Heliport Inspection Basics

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Sources

- FAA AC 150/5390-2C- Heliport Design
  - http://www.faa.gov/documentLibrary/media/Advisory_Circular/150_5390_2c.pdf
- MN State Rules- Chapter 8800 Department of Transportation, Aeronautics
  - http://www.dot.state.mn.us/aero/
- National EMS Pilots Association (NEMSPA)
  - http://www.nemspa.org/

Heliports Overview

- What agencies are involved
- Know what regulations apply
- Identify what forms must be filed
- Inspections
- More takeaways
  - Understand location importance
  - Understand basic design & safety principles
  - Understand training and education needs

Agencies, Organizations and Individuals that need to be Involved and Consulted

- Federal Aviation Administration (FAA)
- Department Of Transportation (DOT)
- National Fire Protection Association (NFPA)
- Occupational Safety and Health Association (OSHA)
- State & Local Fire Marshalls
- State Air Medical Associations MNAMC.org
- Pilots from your Local Air Medical Providers
- Insurance Underwriters
- Risk Management & Safety Departments
- Local Zoning Commissions
- City Councils
- Neighborhood Associations

Who To Contact

- **Any time a heliport is to be constructed, updated, changed, moved or closed you should always advise your State DOT and Regional FAA offices as soon as possible and insure that the appropriate paperwork is completed and filed.**

- **MN State Department of Transportation Office of Aeronautics**
  http://www.dot.state.mn.us/aero/

- **FAA Flight Standards District Office**
  In your area go to:
  http://www.faa.gov/about/office_org/field_offices/fsdo/

- MN Air Medical Council MNAMC
  http://www.mnamc.org/

Your MNAMC Users

Life Link III

MAYO CLINIC
Medical Transport

North Memorial

SANFORD
LifeFlight

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Before You Begin

- All to often organizations contract with architectural and building firms that have never built or designed a heliport. Due to the many special idiosyncrasies, specific regulations and the multiple agencies involved this approach has resulted in significant delays, unsafe conditions and extremely high cost overruns.

- When going out for contract to design and build a heliport, project managers should always insist that whomever is awarded the contract hire a qualified heliport consultant for the project.

Before You Begin

- **Federal Aviation Regulation: FAR Part 157**
  - Requires notification to the appropriate FAA Airport District/Field Office or Regional Office at least ***90 days before*** construction, alteration, deactivation, or the date of the proposed change in use.
  - FAA Notification includes
    1. A completed *FAA Form 7480-1*
    2. A heliport layout diagram
    3. A heliport location map
  - Penalty for failure to provide notice; persons who fail to give notice are subject to civil penalty under 49 CFR 46301.

Before You Begin

- MN Rules 8800.1400
  - Subp. 2 application and Fee
  - Found on our web site, “Application for New Landing Area” State Application
  - Consult with the MnDOT office of Aeronautics
    - We will review plans
    - We will do a preliminary inspection

Completion

- **NOTICE OF COMPLETION**
- Within 15 days after completion of any airport project covered by this part, the proponent of such project shall notify the FAA Airport District Office or Regional Office by submission of *FAA Form 5010–5* or by letter. A copy of FAA Form 5010–5 will be provided with the FAA determination. Insure that FAA Form 5010-5 has been signed by the hospital administration prior to submission.

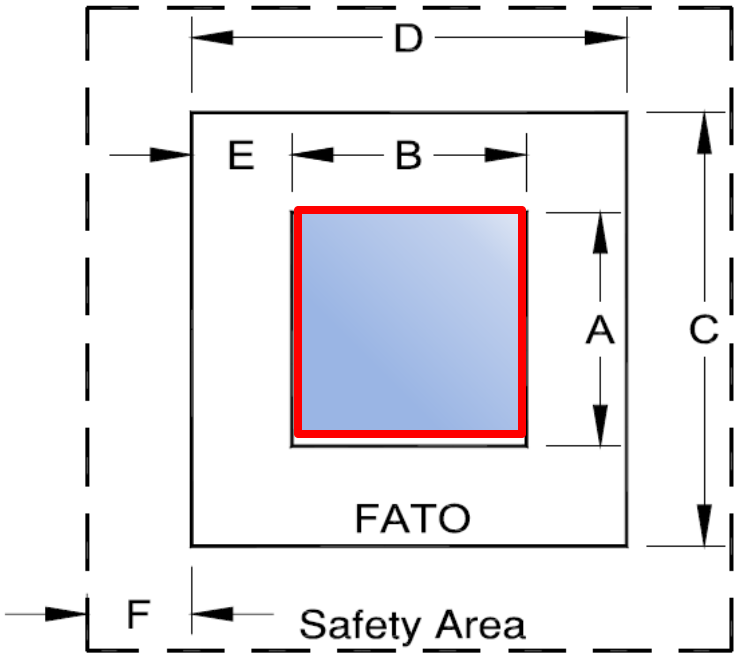
Before You May Operate

- **MN Statute 360.018**
- **Subd. 6.Licensing airport or other air navigation facility.**
  - All proposed airports, restricted landing areas, and other air navigation facilities shall be first licensed by the commissioner before they, or any of them, shall be used or operated.
  - Please schedule your inspection with us about a month prior to estimated completion.

Inspections

- Our objective is to ensure that the heliport was designed and built to at least the minimum FAA and state licensing standards.
- We will make recommendations to improve areas, however, we will be clear on what is required for licensing vs. recommended for additional safety margins.

Definitions- TLOF



A – Minimum TLOF Width: 1.0 RD but not less than 40 ft. (12 m)
B – Minimum TLOF Length: 1.0 RD but not less than 40 ft. (12 m)
C – Minimum FATO Width: 1.5 OL
D – Minimum FATO Length: 1.5 OL
E – Minimum separation between the perimeters of the TLOF and the FATO [0.5(1.5 OL – 1.0 RD)]
F – Minimum Safety Area Width: See Table 4-1

RD: Rotor diameter of the design helicopter
OL: Overall length of the design helicopter

Definitions- TLOF

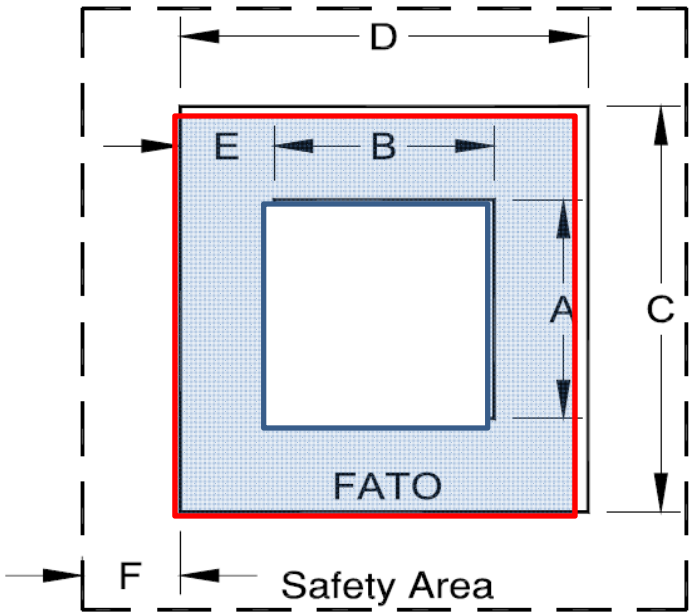
- It starts with the center area known as the **Touchdown and Lift-off Area (TLOF).**
- A load bearing, generally paved area, normally centered in the FATO, on which the helicopter lands or takes off. The circular gives the specifics requirements for size and capacity.
- No object may penetrate this area.

Definitions- TLOF

- The minimum sizes for the TLOF are:
  - Ground 40x40, we recommend 45x45
  - Elevated rooftop is 55x55

TLOF

Definitions- FATO



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Typical FATO: 80x80 for ground pads
90x90 for elevated pads

Definitions- FATO

- From there we move around the TLOF to the **Final Approach and Takeoff Area (FATO).**
- A defined area over which the final phase of the approach to a hover, or a landing is completed and from which the takeoff is initiated. This area needs to be kept clear so the helicopter can maneuver; sizes again are defined in the circular.
- No object may penetrate this area

FATO

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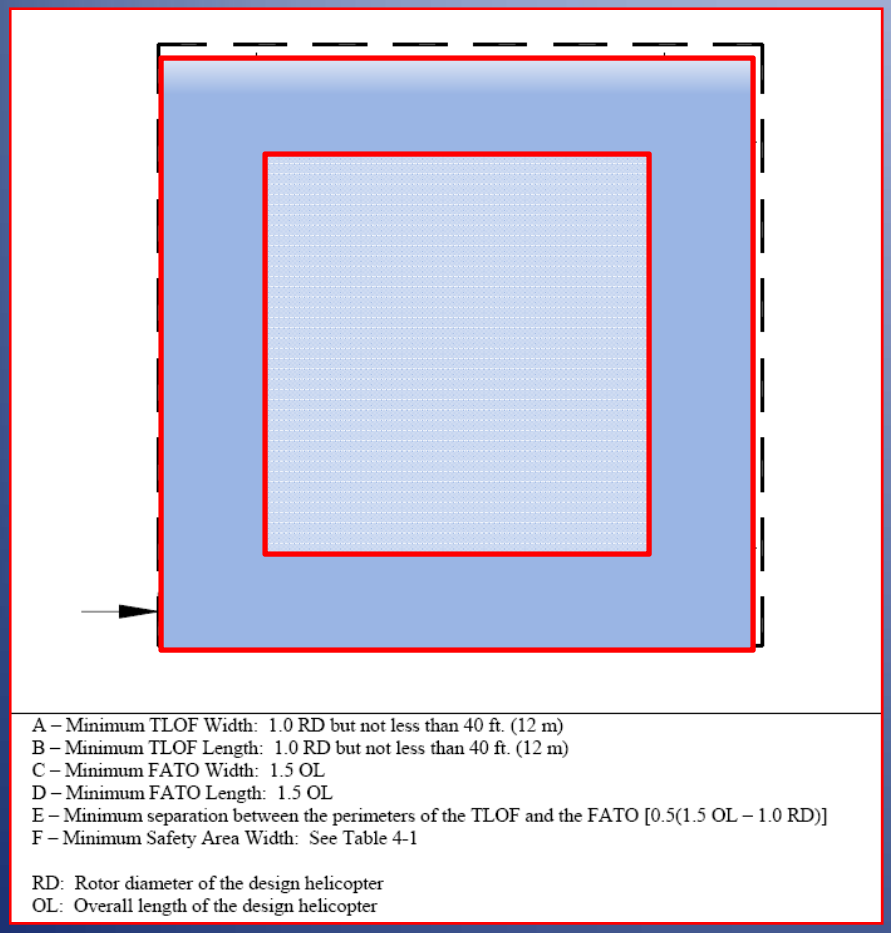
Definitions- Safety Area



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F – Minimum Safety Area Width: See Table 4-1

RD: Rotor diameter of the design helicopter
OL: Overall length of the design helicopter

Typical safety area is 110-120ft

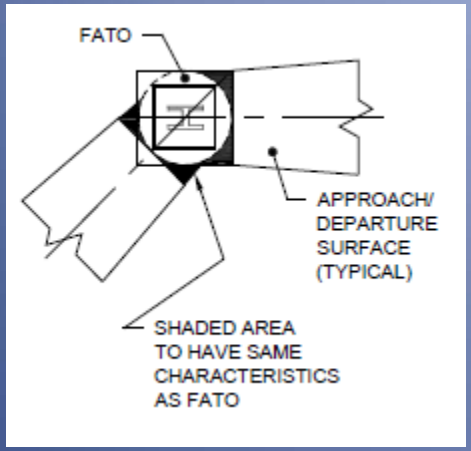
Definitions- Safety Area

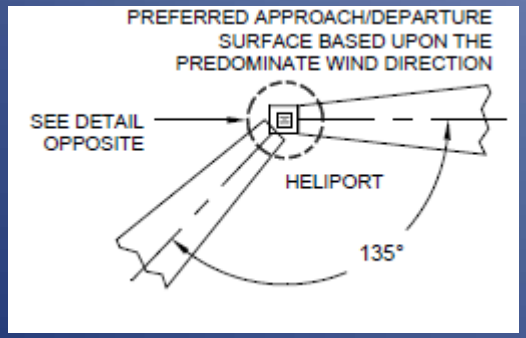
- Next we move out to the **Safety Area.**
- A defined area on a heliport surrounding the FATO intended to reduce the risk of damage to helicopters accidentally diverging from the FATO. This area should be free of objects, other than those frangible mounted objects required for air navigation purposes.
- Those objects whose functions require them to be located within the Safety Area should not exceed a height of 8 inches (20 cm) above the elevation of the FATO perimeter nor penetrate the approach/ departure surfaces or transitional surfaces.

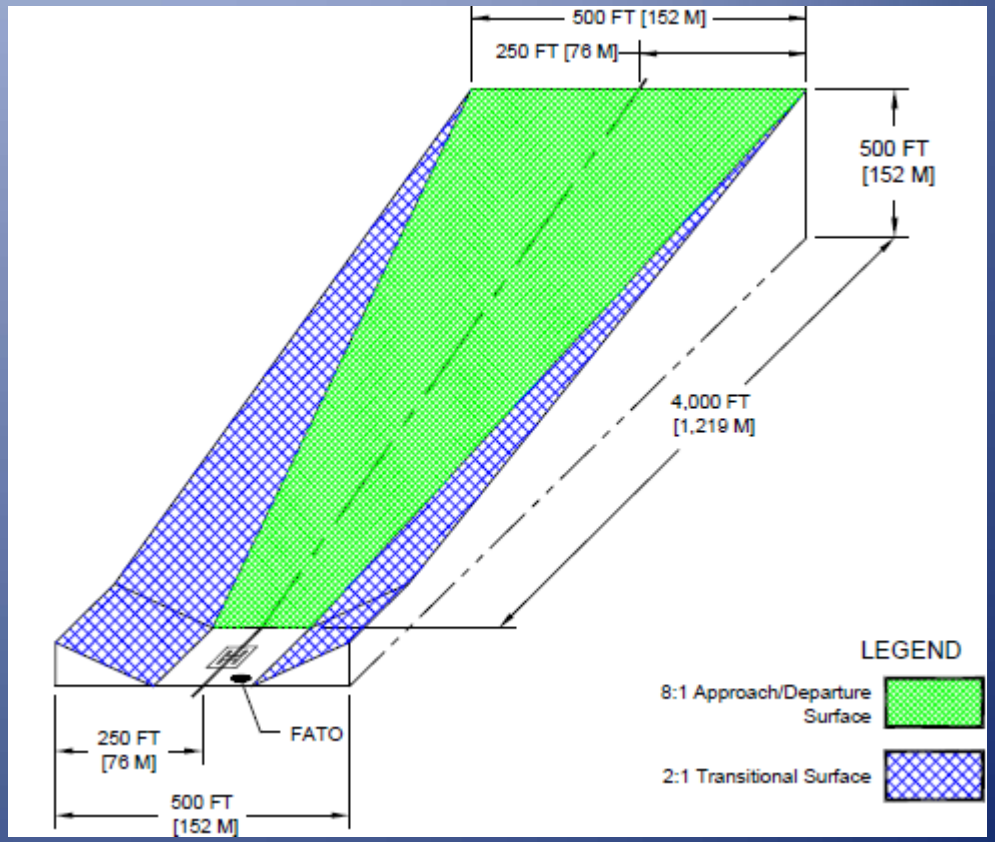
Definitions- Approaches

- **Approaches**-This is a critical area that we look at for objects such as trees, towers, buildings, power lines or anything that may interfere with a helicopters ability to safely approach or depart a pad. This is often a time of high work load for the pilots and must be object free.

Definitions- Approaches







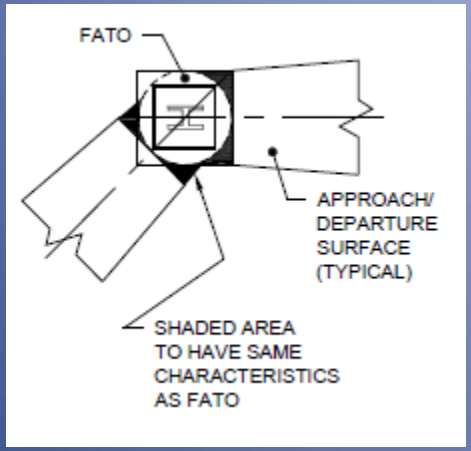
Approach / Departure Paths

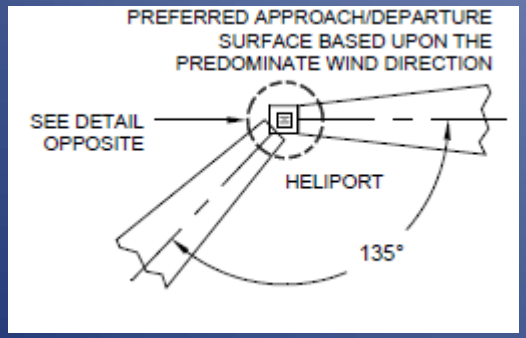
- Approach/Departure paths should be such that downwind operations are avoided and crosswind operations are kept to a minimum.
- When the prevailing winds information is not available, the separation between the preferred flight paths should be at least 135 degrees.
- The State of MN requires two approaches with a minimum separation of 90 degrees.

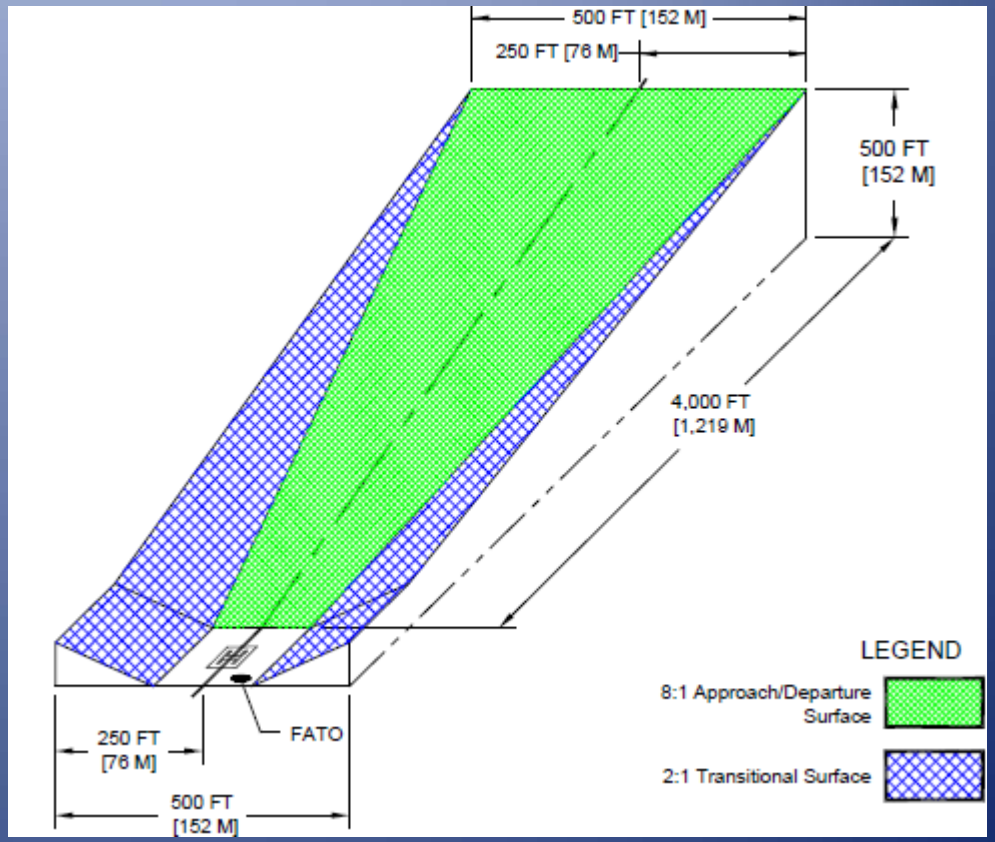
Definitions- Approaches

- The **Approach/Departure Surface** is created from this track in a vertical sloped horizontal plane. It starts at the edge of the FATO and slopes upward at 8:1 (8 units horizontal in 1 unit vertical) for a distance of 4000 ft. where the width is 500 ft. at a height of 500 ft. above the elevation of TLOF surface.
- No object may penetrate this surface.

Definitions- Approaches







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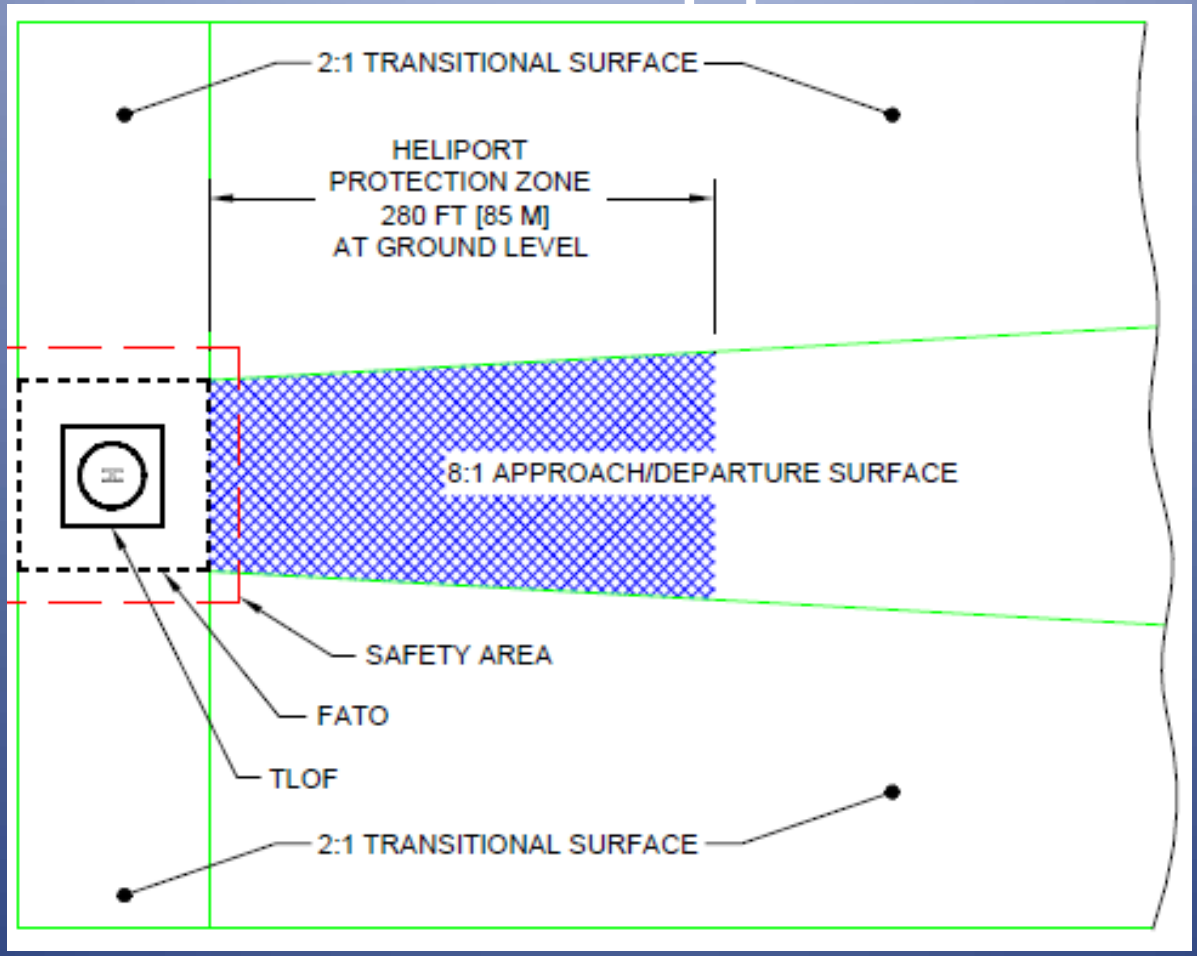

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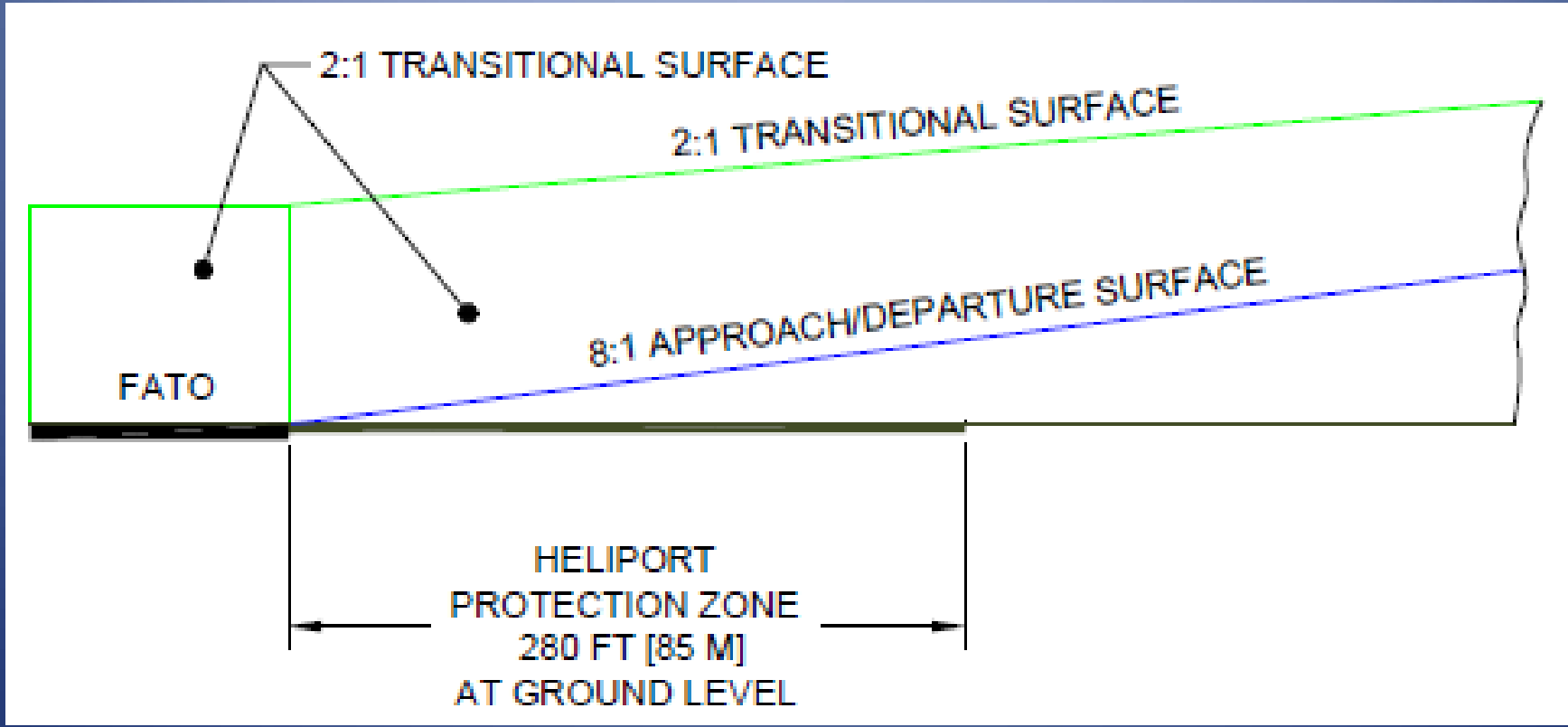

Approaches

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Approaches

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Lighting

- If night operations are conducted, the TLOF, walkways, wind sock and any obstructions identified must be lit.
- TLOF and FATO need to be flush lights or offset pole mounted down lighting that clearly lights the pad and walkway without being a hazard to the helicopter pilots.

Lighting

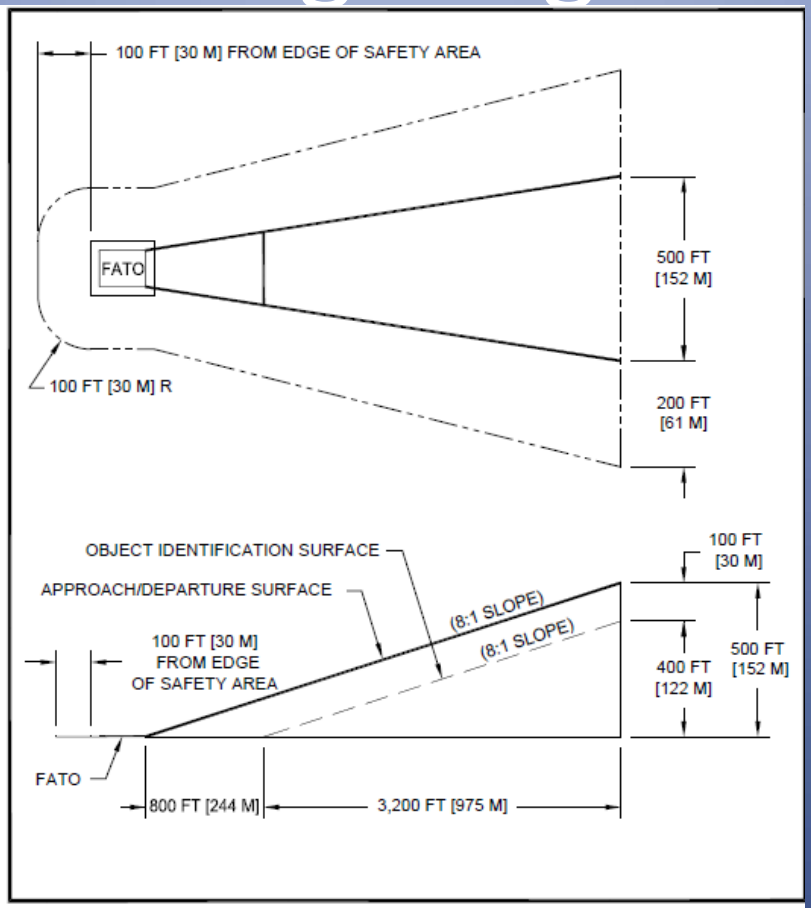
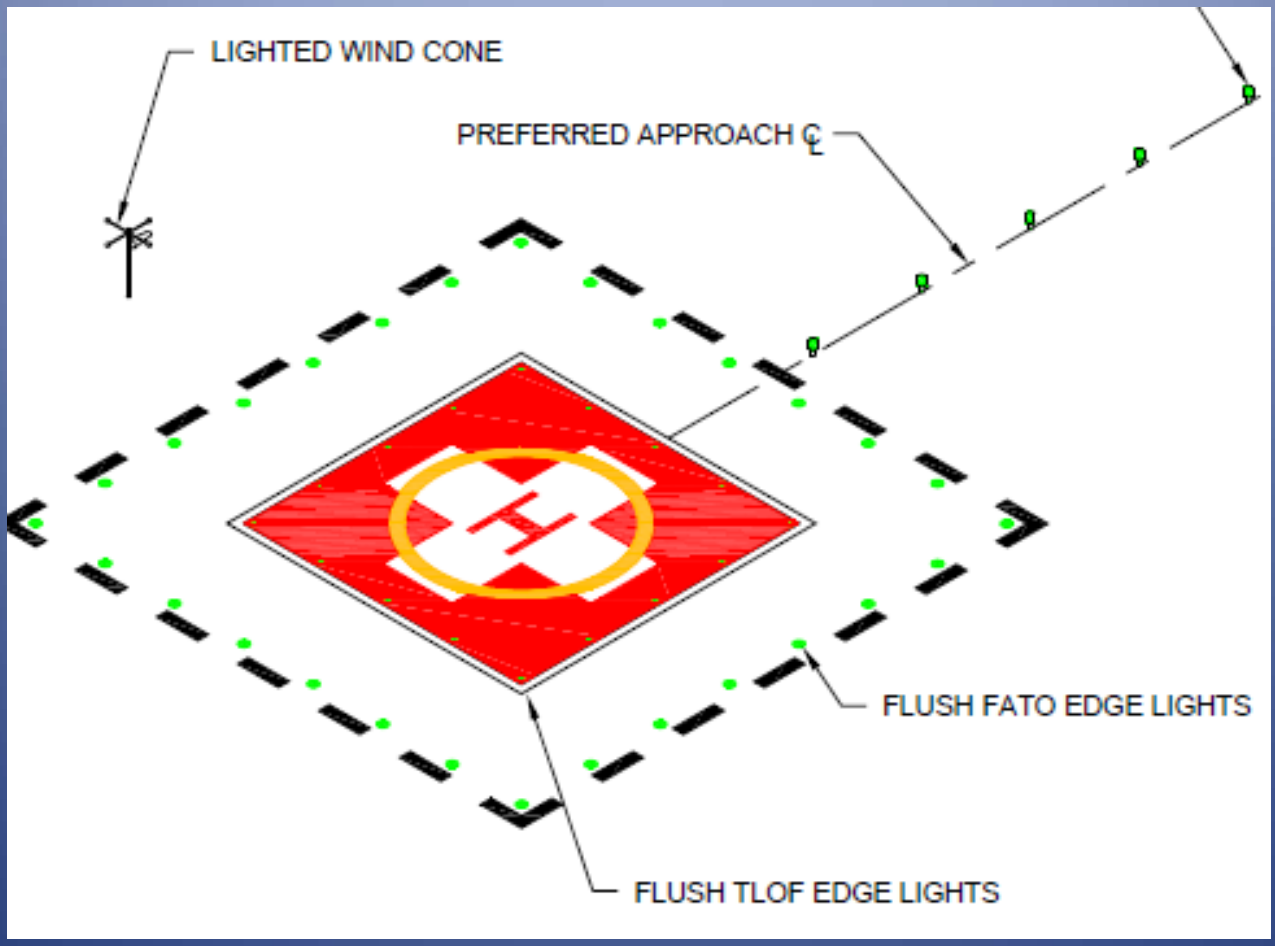


Figure 2–32. Airspace Where Marking and Lighting are Recommended: Straight Approach: General Aviation

Lighting


LIGHTED WIND CONE
PREFERRED APPROACH ℄
FLUSH FATO EDGE LIGHTS
FLUSH TLOF EDGE LIGHTS

Lighting

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Lighting

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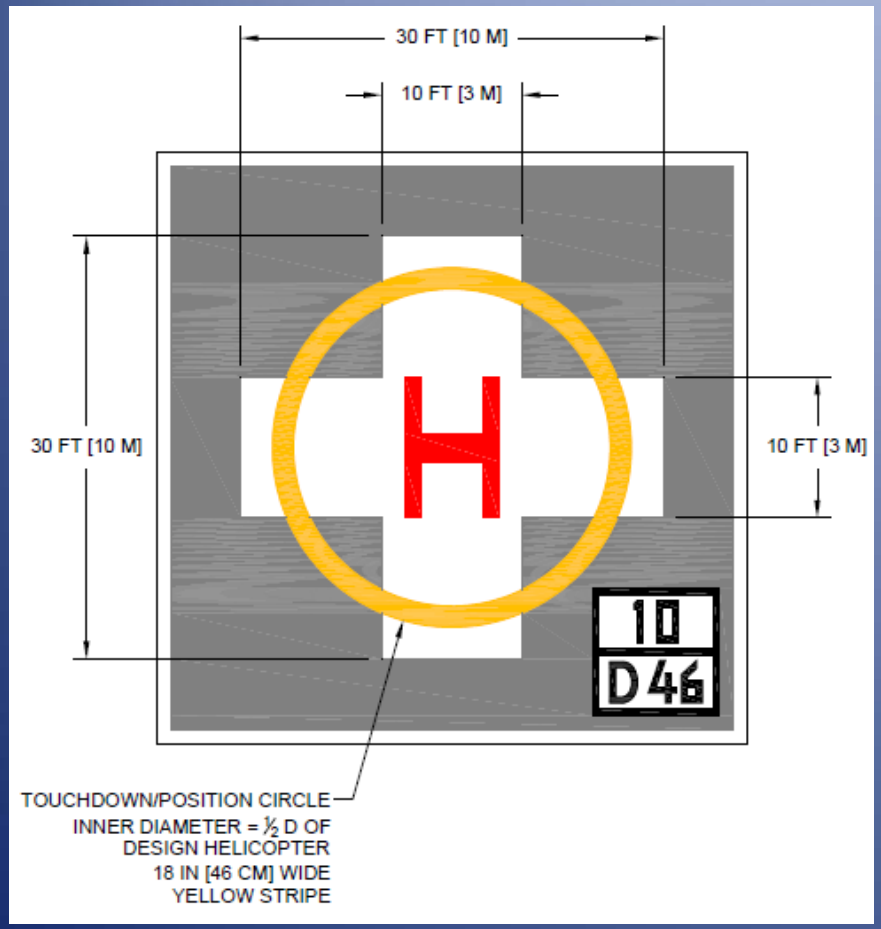
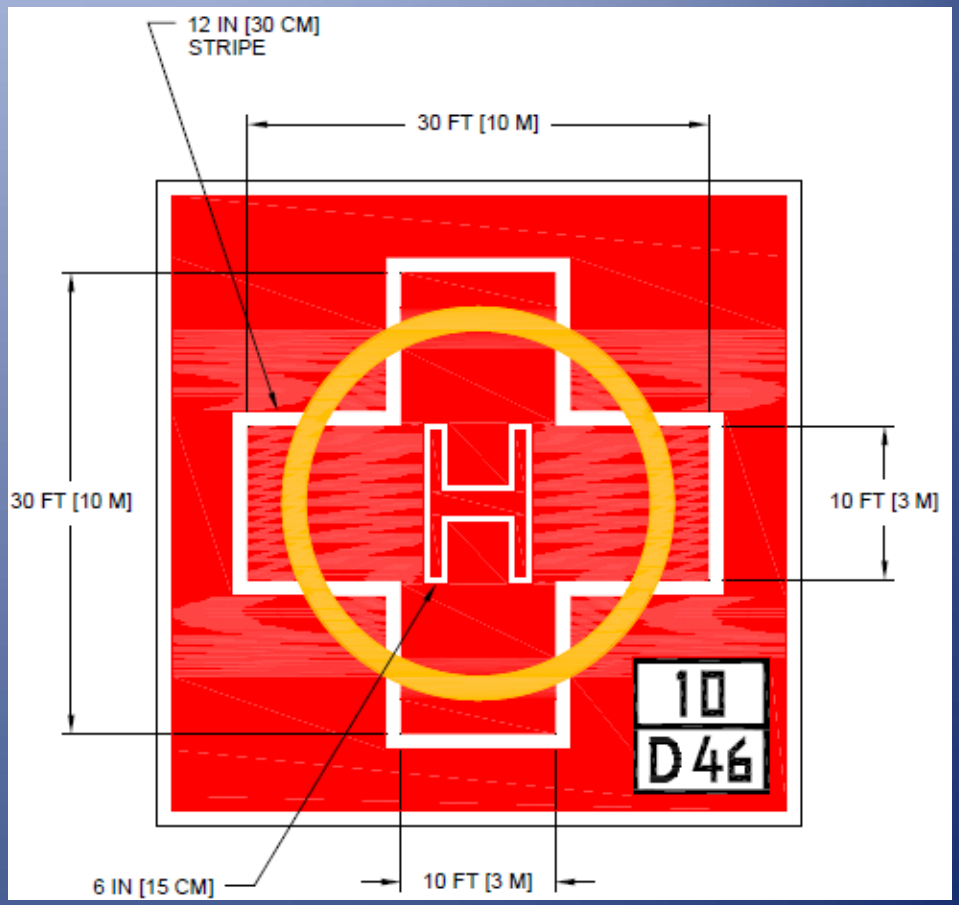
Paint


30 FT [10 M]
10 FT [3 M]
30 FT [10 M]
10 FT [3 M]
H
10
D46
TOUCHDOWN/POSITION CIRCLE
INNER DIAMETER = ½ D OF
DESIGN HELICOPTER
18 IN [46 CM] WIDE
YELLOW STRIPE

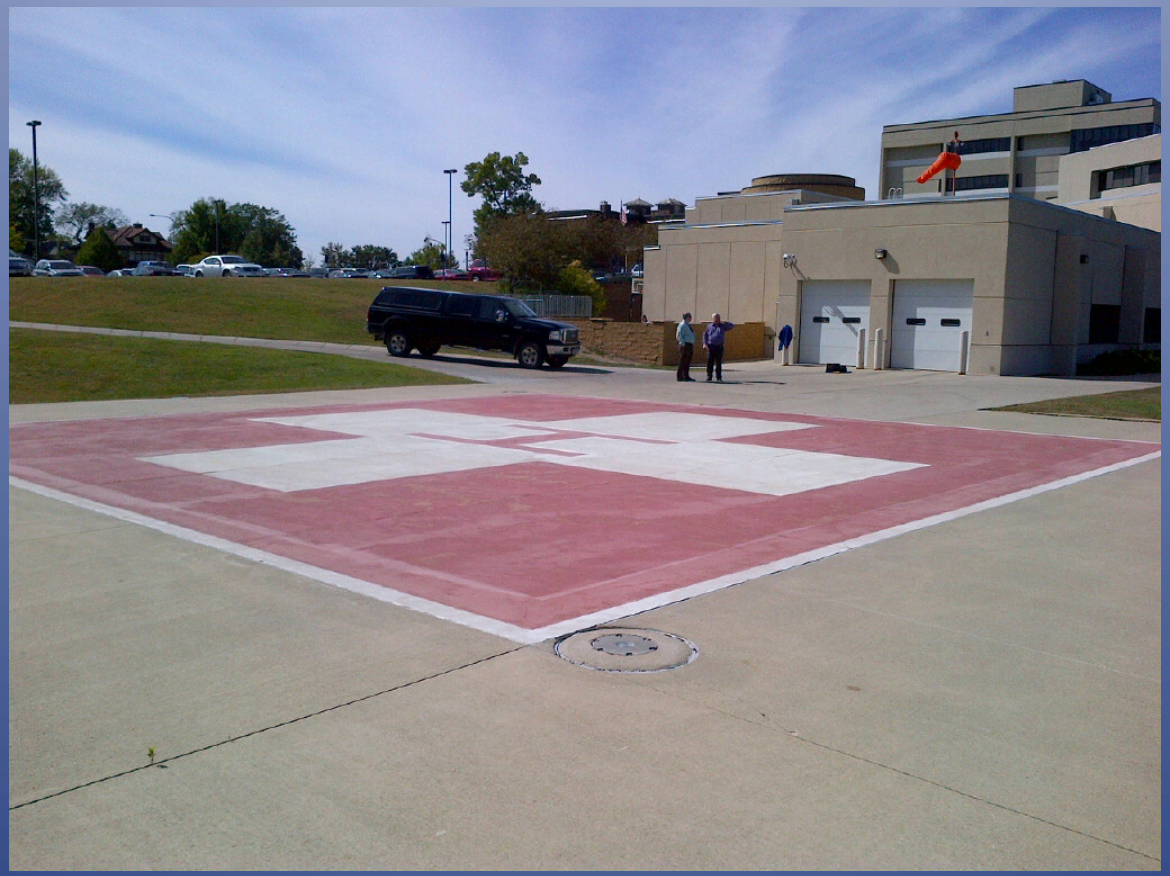

12 IN [30 CM]
STRIPE
30 FT [10 M]
30 FT [10 M]
10 FT [3 M]
H
10
D46
6 IN [15 CM]
10 FT [3 M]

Aircraft Operations

Windsock

- Outside the safety area and approaches.
- Lighted for night operations.
- Should be seen from the TLOF.
- May use more than one.

Winsock



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Fire Equipment

- MN rules require a fire extinguisher of at least a 20-B rating for ground pads.
- Elevated pads will need to meet building code requirements. Typically a foam nozzle system.
- MN rules also require roof pads to have at least two egress exits.

Fire Equipment

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Policies-Security

- Ensure that only authorized personnel have access to the pad during operations.
- Approaches and Safety areas must be kept clear of traffic also.

Policies-Transfer

- Ensue policies are developed to safely transfer patients for both:
  - Helicopter shut down
  - Hot loading (engines running) if required
- Operations around helicopters, initial and recurrent training.

Policies-Snow Removal

- Develop a snow removal plan.
- No sand or salt allowed.
- Snow must be cleared to at least the edge of the safety area.
- Keep snow banks below approach slope, pile away from approaches.

Policies-Snow Removal

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Policies-Accident

- Develop an emergency plan in case of a helicopter accident.
- Bring in the local fire department for training.
- Will the building need to be evacuated?

Bulletin Board

- Install a bulletin board near the exit to the pad used for patient transfer.
- Post helicopter safety poster.
- Operations policies around helicopters.
- Copy of your license to operate the pad.

Issues

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